Saskatchewan
Highways and
Transportation

1997 Ferry Traffic

Annual Report

Capital Programming
Engineering Services Division

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1.0 Introduction

This annual report summarizes and presents analysis of the traffic that used the provincial ferry system in 1997. Traffic data was collected at the 12 open ferry sites on the highway system. Comparisons are made between traffic at the ferry sites and previous years.

This report examines the history of traffic volumes and the types of vehicles using each ferry. Examination of the distribution and composition of ferry traffic gives useful insights into the function of each ferry.

Your attention is drawn to the following points about the report:

- Difference between the data from ferry to ferry is as important as the data itself.
- The vehicle type data for some vehicles at many of the sites is too small a sample to support accurate conclusions.
- A mild fall and winter enabled the Riverhurst ferry to close for the season at a later date than in previous years.
- Data collected from the Riverhurst ferry that ran into January 1998 is amalgamated with 1997 data.
- The vehicle type data collected at the Riverhurst ferry in 1997 is not compatible with any other ferry.
- A total of five different forms were used to collect data in 1997. Therefore, categories had to be combined to produce compatible data.

2.0 Background

The department operated 12 ferries during 1997, 11 on the North and South Saskatchewan rivers and one Lake Diefenbaker. The ferry system has remained basically unchanged since responsibility for the system was moved to the Department as a result of Rural Developments amalgamation with the Department.

Presently, the responsibility for compiling and reporting the traffic data collected by the ferry operators is held by the Traffic Information System. This annual report documents the traffic that used the ferry system in 1997 and examines changes and trends in the traffic data.

3.0 Operating Season

Some ferries did not run at times during the season for reasons such as mechanical failure or bad weather. The table below displays the total downtime with the season length. Details for the downtime are shown in Appendix A.

Ferry	Open	Closed	Downtime (hours)
St. Laurent	97/5/5	97/11/7	
Cecil	97/5/5	97/11/11	
Fenton	97/5/5	97/11/12	
Weldon	97/5/5	97/11/12	
Wingard	97/5/5	97/11/7	
Cumberland	Closed Fall 1997		
Estuary	97/4/18	97/11/11	48
Lemsford	97/4/15	97/11/11	
Lancer	97/4/16	97/11/12	96
Paynton	97/6/1	97/11/11	
Clarkboro	97/4/30	97/11/12	
Hague	97/5/1	97/11/11	
Riverhurst	97/5/2	98/1/3	218.5

Table 1. 1997 Operating Season

4.0 Traffic Volumes

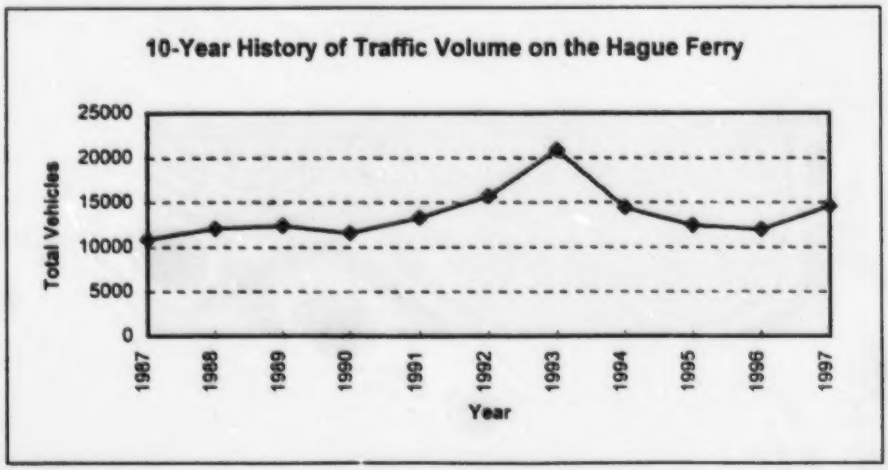
To facilitate analysis systematically the ferry traffic data were grouped by geographical location. The system results in 4 groupings: Saskatoon, Prince Albert, Swift Current and North Battleford. The table below displays monthly traffic in 1997.

Ferry Volumes	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Year
St. Laurent		2105	2105	4454	3418	2617	2245	43			16987
Cecil		1707	1707	2121	2385	1688	1385	310			11303
Fenton		900	1284	2218	1220	1505	1243	346			8716
Weldon		4457	4457	5056	5000	5260	3925	1300			29455
Wingard		1090	1090	2101	2165	1503	1259	212			9420
Cumberland	*Did not open*										
Estuary	312	1110	1192	2084	1582	1306	1044	428			9058
Lemsford	782	1968	2241	2741	2425	1870	1823	543			14393
Lancer	314	827	702	1269	1188	1022	985	378			6685
Paynton			6431	7731	7590	6055	5455	1103			34365
Clarkboro	120	6648	6646	7575	6570	6305	6854	2273			42991
Hague		2170	2280	2693	2906	1778	1778	972			14577
Riverhurst		4833	7661	10196	8695	6850	5720	4081	2586	144	50766
Monthly Totals	***1528***	***27815***	***37796***	***50239***	***45144***	***37759***	***33716***	***11989***	***2586***	***144***	***248716***

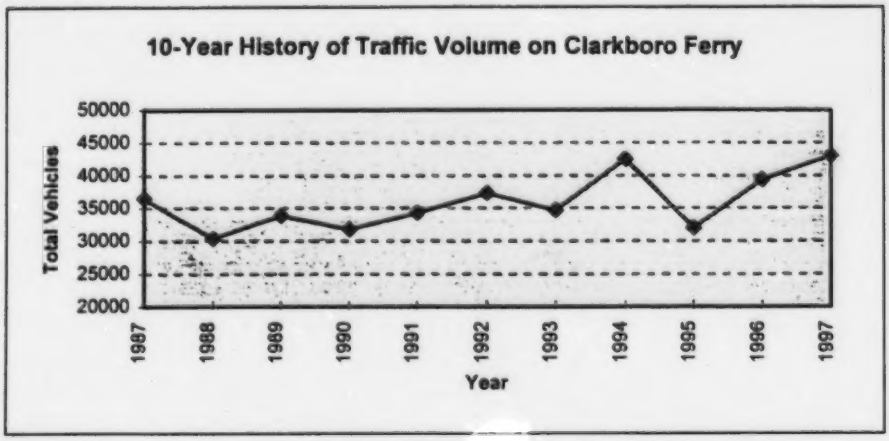
Table 2. Monthly ferry traffic volumes for 1997.

4.1 Saskatoon Area

The Saskatoon area group contains two ferries, Clarkboro and Hague. The Clarkboro and Hague ferries usually carry annual traffic in 35 000 and 12 000 vehicle per year range, respectively, but this year volumes at both locations increased substantially (see charts below). However, it is also noted that no data was recorded for October on the Hague ferry in 1996, lowering the 1996 ferry volume.



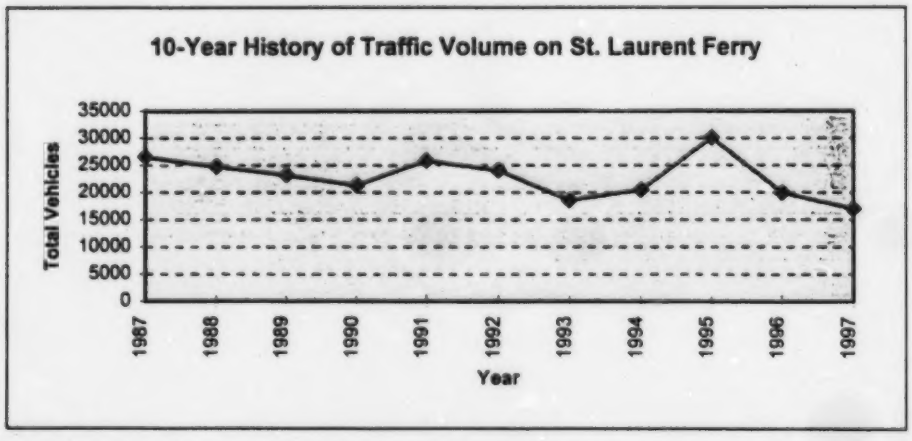
The Hague ferry has remained fairly constant except for 1993 where the traffic volume spiked by just over 5000 vehicles.



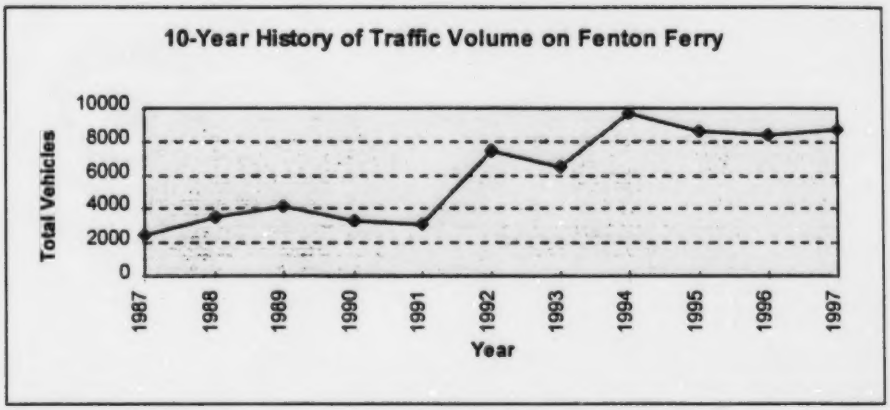
In 1997 the Clarkboro ferry had the highest volume in the past ten years, up 9% from 1996.

4.2 Prince Albert Area

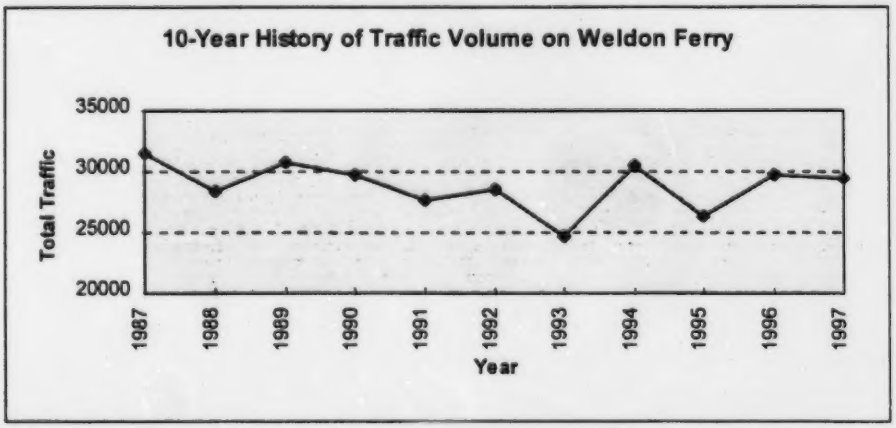
The Prince Albert area group contains the following six ferries: Cecil, Cumberland, Fenton, St. Laurent, Weldon, and Wingard. This year the Cumberland ferry did not operate.



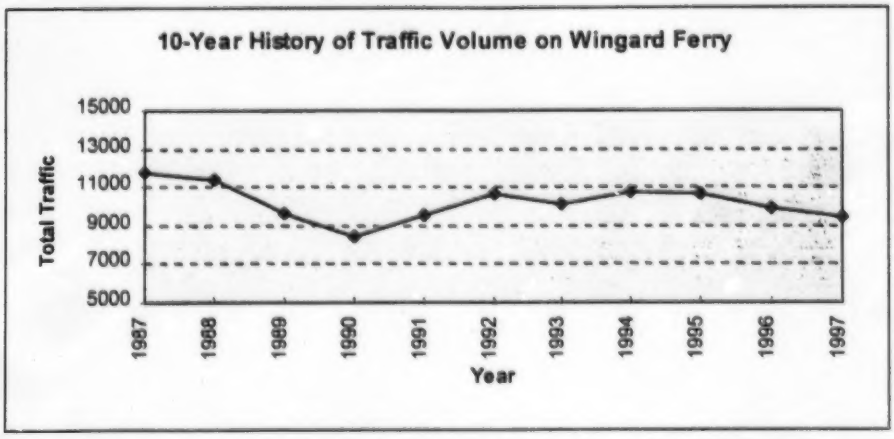
The St. Laurent ferry dropped to it's 10 year low in total traffic volume in 1997, down 15% from 1996.



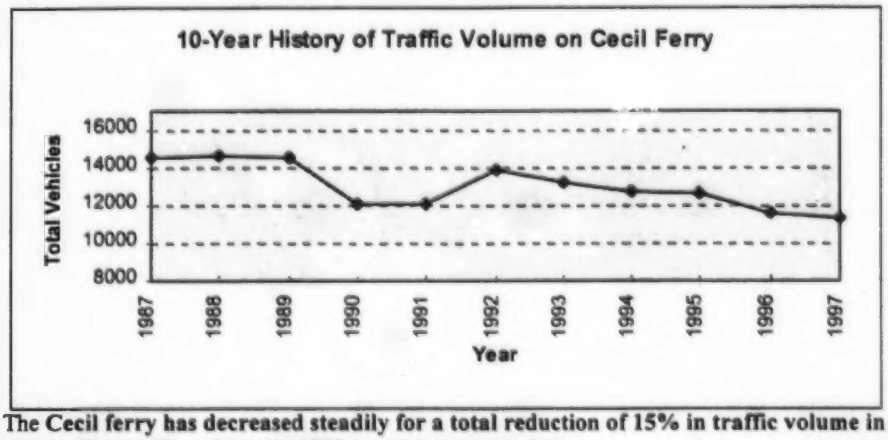
Fenton ferry has had the lowest annual average traffic volume in the ferry system over the last ten years at only 5980 vehicles. However, it has recovered in the last four years to an average of 8850 vehicles per year that makes it only third lowest in traffic volume over this period. In fact, the Fenton ferry increased nearly 400% in total volume between 1987 and 1994. Finally, Fenton was the only Prince Albert-area ferry to increase in traffic volume over 1996.



The Weldon Ferry has shown large fluctuations in traffic volume in the last five years (nearly 25% in 1994). However, the 1997 volume is nearly the same as 1996, down by less than one percent.



The Wingard ferry has remained fairly constant in traffic volume over the last five years, carrying around 10 000 vehicles. The ferry shows a slightly decreasing trend over the last three years.



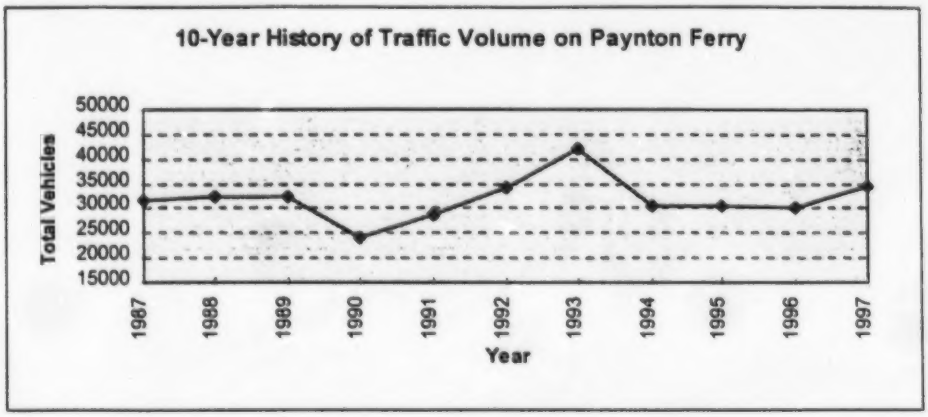
The Cecil ferry has decreased steadily for a total reduction of 15% in traffic volume in the last five years. The traffic volume in 1997 is at it's ten-year low.

Overall, ferries in Prince Albert area have relatively stable traffic volumes, Weldon being the exception. Traffic volumes are down on most ferries in 1997. In total, the 1997 traffic volumes on the Prince Albert area ferries are down 4 ½ % from one year ago. The monthly traffic is displayed in Table 2.

4.3 North Battleford Area

The North Battleford area has only the Paynton ferry. Paynton has carried an average of 31 900 over the past ten years (see chart below). The traffic volume at Paynton fell sharply to 24 000 vehicles in 1990 and then climbed to 42 000 by 1993.

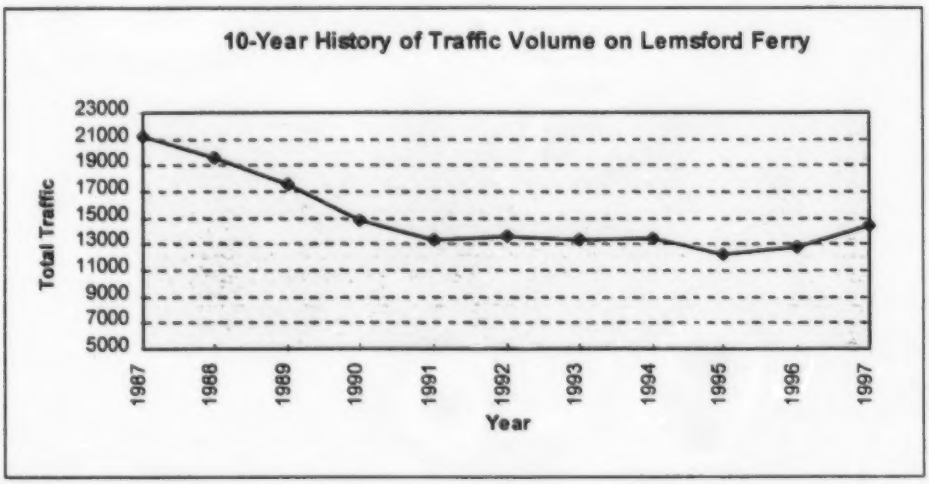
Traffic volumes between 1994 and 1996 were remarkably stable at 30 500 vehicles per year and then increased to 35 000 in 1997. To examine the monthly traffic see Table 2.



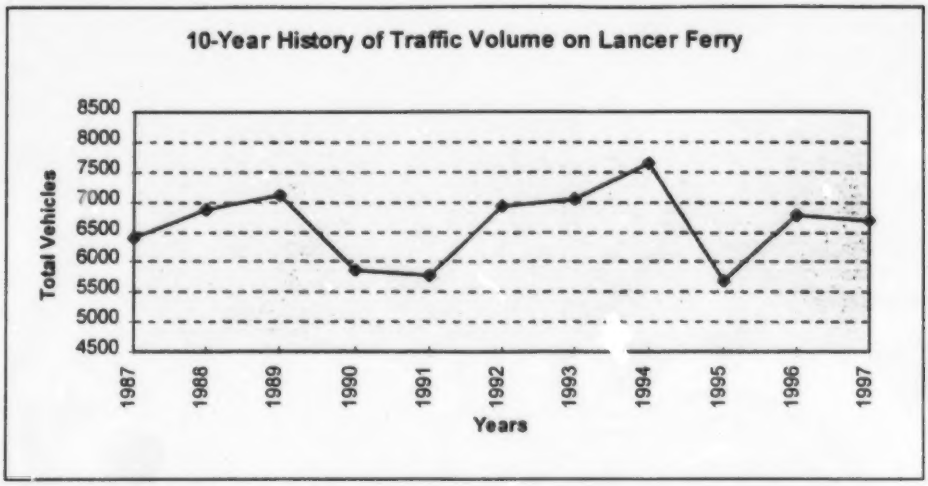
The volume carried by Paynton ferry rose 15% in 1997.

4.4 Swift Current Area

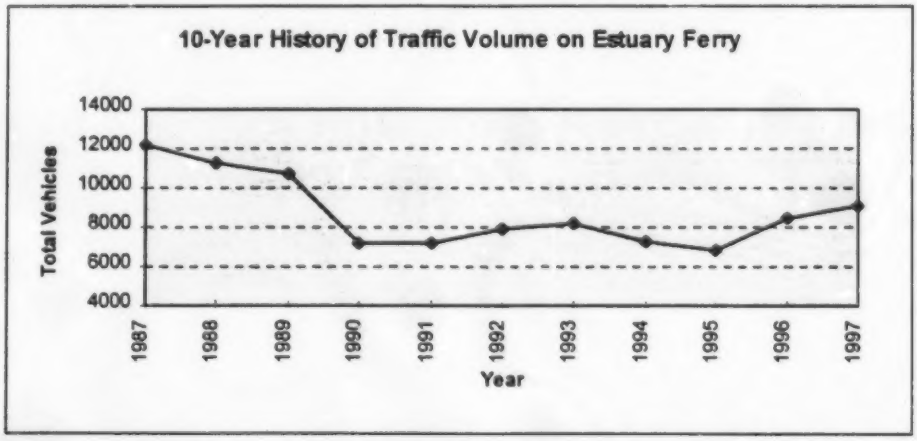
The Swift Current area has four ferries: Estuary, Lancer, Lemsford, and Riverhurst.



The Lemsford ferry has decreased in traffic volume by about 1/3 of the 1987 volume. However, both 1996 and 1997 volumes were up.

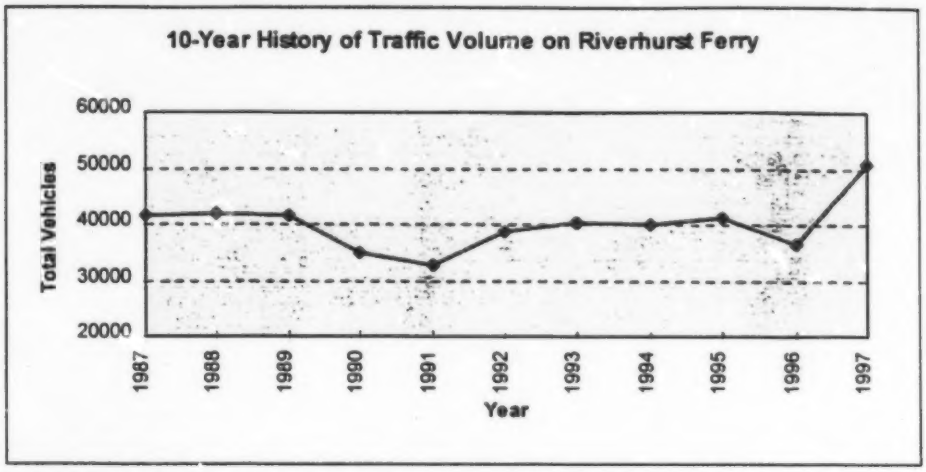


Traffic volumes on the Lancer have been somewhat irregular in previous years, but neither a decreasing nor increasing trend has become evident. In 1997 the traffic volume was very close to the ten-year average of 6650 vehicles. This was the lowest volume in the province in 1997.



The Estuary ferry's traffic volume pattern is similar to Lemsford. It too showed a decreasing trend that leveled off from 1990-1995, and has increased in the last two years. In 1997 the traffic volume is about ¾ of the 1987 volume.

The Riverhurst ferry is the largest and most sophisticated ferry in the province. It carries vehicles two kilometres across Lake Diefenbaker. The Riverhurst ferry has carried stable traffic volumes in the 40 000 vehicles per year range during the last ten years. Volumes increased greatly in 1997. Part of the reason is that Riverhurst had a very long 1997 season (from early May until January 3rd 1998. The long season added an additional 3400 vehicles through late November, December and into January 1998. The additional late season traffic volume does not explain the increase of 14 300 vehicles from 1996. This is the largest increase and the largest volume in the ferry's ten-year history. Monthly traffic is displayed in Table 2.



1997 represents the largest increase and total volume in Riverhurst's ten-year history.

A table and a graphical plot of the historic traffic volumes at all the ferries in the province can be found in Appendix C.

5.0 Vehicle Classifications

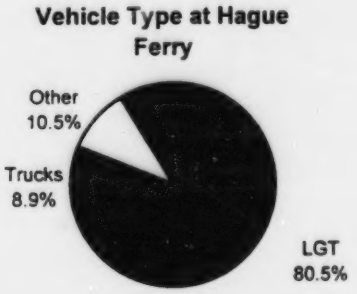
Ferry operators record each type of vehicle separately. This allows for interpretation on the type of traffic in that area. Unfortunately, five different forms were used to record this data in 1997. Three were by vehicle types and two, used for Riverhurst ferry exclusively, were by license type. Because different forms collected incompatible data through the year it isn't always possible to make comparisons throughout the year, to other ferries, or to past data. For example, the form used by the Estuary ferry operators in August used 'LGT', to record light vehicles, which replaced the separate 'cars' and '½ tons' used in May's form. Likewise, buses, tractors, and self-propelled machinery were put into a group named 'other' in a different form. This limits the analysis that can be done with this data.

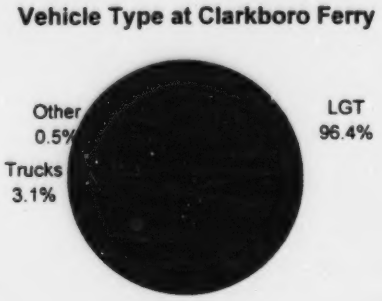
As with traffic volumes, vehicle classifications are also divided into geographical locations.

5.1 Saskatoon Area

The main difference between traffic at Hague opposed to Clarkboro is the amount of trucks carried. Hague carries 9% heavy trucks versus only 3% at Clarkboro. According to the 1996 annual report, Clarkboro carries a greater percentage of cars than ½ ton trucks and greater total volume than Hague. Furthermore, as noted in Section 4, the

Clarkboro ferry carries approximately three times the total volume of the Hague ferry. This would suggest that Clarkboro serves as a commuter route to Saskatoon and Hague serves rural communities. The location of the ferries confirms this as Hague is about twice the distance from Saskatoon as Clarkboro.





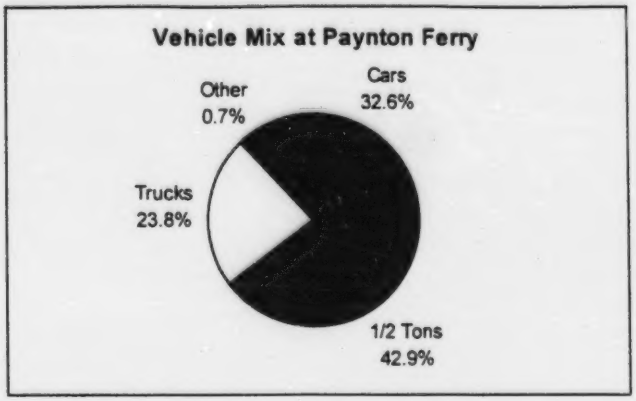
5.2 *Prince Albert Area*

The Prince Albert group is comprised of the Cecil, Fenton, Wingard, St. Laurent, and Weldon ferries. The percentage vehicle mix is displayed in the table below. Cecil, Weldon, and Wingard carry a greater proportion of heavy trucks than the other two ferries. The 1996 report shows that the Fenton and Wingard ferries carry pick-up trucks as the majority of light vehicle traffic, indicating these ferries serve mainly rural traffic. Unfortunately, no such comparison can be made in 1997 because different forms were used to collect data than in 1996.

	Cecil	Weldon	Wingard	Fenton	St. Laurent
% LGT	86	88	86	93	97
% Truck	10	8	7	3	2
% Other	4	4	7	4	1

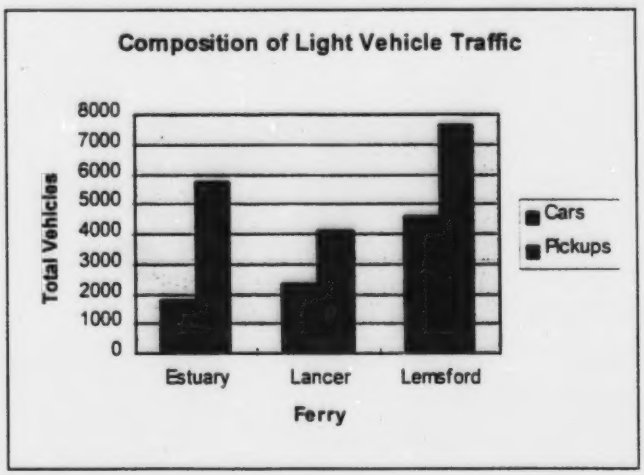
5.3 *North Battleford Area*

The Paynton ferry is the only one in the North Battleford area. Since only one form was used to collect data at this location it's possible further classify vehicle types at this location. This ferry serves a predominately rural population as shown by the high proportion of pickup trucks (57% of light vehicles). Paynton also serves as a major link to highway #16 for freight and agricultural product haul. Heavy trucks comprise 24% of vehicle traffic on this ferry, over twice the highest of all locations.



5.4 Swift Current Area

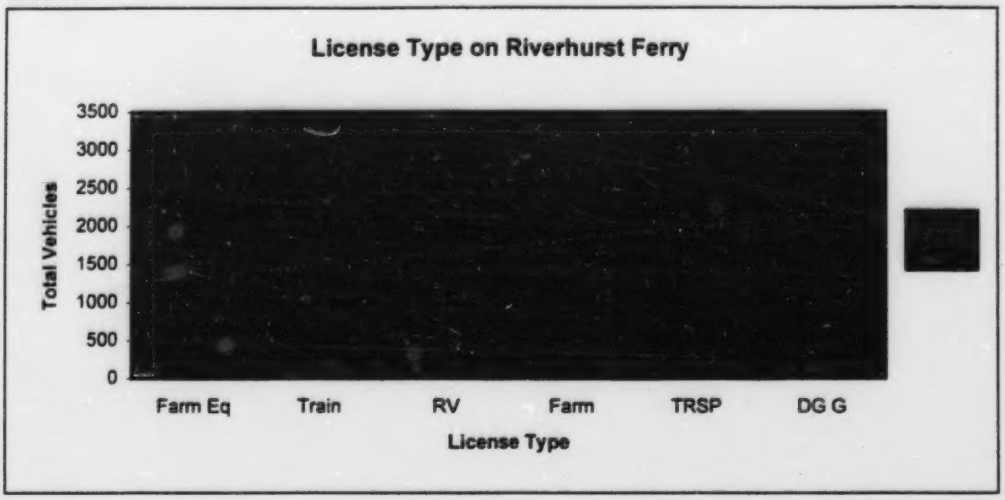
The 1996 report concluded that the Swift Current area ferries all serve predominately rural populations because the proportion of pickup trucks was so high (for lack of 1997 data the 1996 data is shown below to emphasize this point). This idea is supported by the rural location of these ferries.



Estuary, Lemsford, and Lancer ferry data can be compared, but the Riverhurst ferry is classified by license type and must be considered separately. The Estuary, Lancer, and Lemsford ferry all similar in location and carry about the same vehicle mix.

	Estuary	Lancer	Lemsford
% LGT	90	96	95
% Truck	6	2	2
% Other	4	2	1

The graph below shows the difference in vehicle type from last year's report. Private vehicle made up 88% of the license types in 1997 and 86% in 1996. This class was not included in the graph for clarity. A category "Bus" was introduced in 1997, but only appeared on some forms (see Appendix B). It too is not included in the figure below.



Note that in 1997 the recorded number of farm licensed vehicles dropped by 70%. Train(multi-trailer) licensed vehicles rose 900%. Farm equipment and TRSP more than doubled. These increases are likely the first indications of potato growing developments centred around Lucky Lake. There is some possibility that recording of vehicles by license types resulted in some misrepresentation of the ferry traffic. It is also possible that some license types were recorded in 2 type categories or simply put in the wrong class. Nevertheless an increase of 14 300 vehicles between 1997 and 1996 is quite exceptional and needs to be monitored.

6.0 Conclusions

- In 1997 the ferry system was operating near the 10 year average traffic levels
- The ferry system is still utilized. Years to year traffic fluctuations at individual ferries seem to be caused by differences in the length of the operational system, weather, or other local factors exterior to the highway system.
- In previous studies the ferries were classified as either urban feeder links or rural traffic by the ratio of cars to pickups. These classifications cannot be made in the 1997 study because some forms grouped these two vehicle types as LGT.

6.1 Operating Season/Downtime

- Riverhurst had the longest operating season, extending into January 1998.
- Mechanical problems were usually fixed within a reasonable amount of time. The one exception was at Riverhurst when the ferry was out of service for six days in December to replace a drum and cable.

6.2 Traffic Volumes

- The Saskatoon-area Clarkboro ferry carried a ten-year high volume in 1997.
- Traffic on Prince Albert-area ferries appears to be decreasing. Four of the five ferries carried less traffic in 1997 than in 1996 and two of them, St. Laurent and Cecil, recorded ten-year lows.
- Lemsford and Estuary volumes appear to be recovering in the last three years after dropping 1/3 of their volume in the previous seven years.
- Riverhurst had the largest annual change in total volume, up 14 300 vehicles from 1996, a 10 year high volume.

6.3 Traffic Classification

- Five different forms forced classifying vehicles into one of only three categories, limiting conclusions that could be made on vehicle classifications.
- Paynton carried 24% heavy trucks, which makes it by twice as high as any other ferry location. It carried a similar percentage in 1996, suggesting this route is on a well used haul route. Paynton also carries the third highest annual volume.
- Riverhurst ferry data differed incredibly from 1996 in several categories.

7.0 Recommendations

1) Further investigation on highway traffic flow in the Prince Albert area could help explain the recent low ferry volumes.

2) Traffic volume on Riverhurst ferry should be watched carefully to document the development of the potato haul over the next several years. Additional monitoring may be required to determine if the existing ferry is capable of handling the extra volume in an effective manner.

3) Replace the five different forms used in 1997 with two forms in 1998. The following vehicle classification categories are suggested:

- LGT (light vehicles)
- STR (straight trucks)
- SEMI (single trailer trucks)
- MULTI (multi trailer)
- other (not in the above, farm equipment etc)
- comments (details to explain "others" ie: combine, tractor, dangerous goods etc)

These are the same basic vehicle classifications collected on the rest of the highway system and are therefore comparable to the all the other traffic data used to monitor the highway system. Special vehicle types like farm equipment can be easily dealt with by recording the vehicle in the "other" category and then using the "comment" column to supply details. The same is true of other important information that may be required such as dangerous goods are being carried. The type of dangerous good should be documented in the "comment" column.

4) The Riverhurst ferry carries such high volumes and requires so much more operational data to be collected that a daily trip form is required. The same vehicle classification system should be used for the reasons discussed above. The daily sheets should be about 50% longer than the ones used in 1997 to eliminate the need for additional sheets. If the form can not reasonably be increased in length all the sheets in a given day need to be dated and numbered (example: 1 of 3).

5) The forms from 1997 contained a number of comments by operators of the Riverhurst ferry about lack of air conditioning. The occupational health committee may wish to investigate this issue. A review of the amount and duration of heat in this work environment could be indicated.

Appendix A

Saskatchewan Highways and Transportation

Daily Ferry Traffic

Ferry crossing _____ DATE _____

Crossing time	LGT	Straight Trucks	Semi Trailer	Multi Trailer	Other	Comments

Saskatchewan Highways and Transportation

Riverhurst Ferry Traffic Data

Date_____ Shift_____ Operators 1. _____ Regular_____
2. _____ Regular_____
Check

Daily Sheet No. _____

Departure Time	LGT	Straight Trucks	Semi Trailer	Multi Trailer	Other	Pass-engers	Comments	Engine R.P.M.	Weather				Equipment Servicing			
									Wind(Kmh)	Sky	Surface	Temp			Main Engine	Genset 1	Genset 2
													Hourmeter	Start			
														Finish			
													Engine oil pressure				
													Engine Coolant temp.				
													Engine oil added				
													Torque Converter Pres.				
													Torque Converter Temp.				
													Torque Conv. oil added				
													Transmission oil added				
													Final drive oil added				
													Hydraulic oil	East Ramp_____		West Ramp_____	
													Remarks(unusual or irregular occurrences)				
Totals																	

Statement Certified Correct

_____
Ferry operator

KEY
LGT -Cars & Pickups
Straight Truck -Non-articulated
Semi Trailer -Single Trailer
Multi-Trailer -2 or more Trailers

Notes:
1) "Other" includes farm or construction equipment, RVs etc.
2) Give details in "Comments" ie: dangerous goods, equipment type, product hauled